CLAIMS

What is claimed and desired to be secured by Letters Patent is as follows:

1. A method for providing immediate and long term control of parasite infestation in an animal; said method comprising:

(a) providing an implanter apparatus for implanting parasiticidal pellets in an animal's ear through the bore of a hypodermic needle which is operably coupled to a pellet magazine;

(b) loading the pellet magazine with at least one immediate release parasiticidal agent pellet dose and at least one extended release parasiticidal agent pellet dose;

(c) inserting the hypodermic needle under the skin of an animal's ear and injecting said at least one immediate release pellet dose and said at least one extended release pellet dose; and

(d) withdrawing the hypodermic needle from under the skin of the animal's ear thereby leaving said at least one immediate release pellet dose and said at least one extended release pellet dose beneath the skin of the animal's ear.

2. The method according to Claim 1 wherein said immediate release and said extended release parasiticidal agent pellet doses separately comprise a parasiticidal agent selected from the group consisting of avermectins, milbemycins, milbemycin oximes, fenbendazoles, lufenerons, derivatives and mixtures thereof.

3. The method according to Claim 2 wherein said parasiticidal agent comprises an avermectin selected from the group consisting of ivermectin, doramectin, moxidectin, eprinomectrin, abamectin, derivatives and mixtures thereof.

4. The method according to Claim 1 further comprising the step of providing a plurality of discrete pellet doses.

5. The method according to Claim 4 further comprising the step of providing at least one discrete immediate release dose in a first pellet and at least one discrete extended release dose in a second pellet.

6. The method according to Claim 1 further comprising the steps of :

(a) inserting the hypodermic needle under the skin of an animal's ear and injecting said at least one immediate release pellet dose;

(b) maintaining the hypodermic needle in place under the skin of the animal; and

(c) sequentially injecting said at least one extended release pellet dose.

7. In a method of administering a subcutaneous implant to an animal, the improvement comprising the step of injecting an implant for retention under the skin of an animal's ear, said implant comprising an immediate release parasiticidal agent dose and an extended release parasiticidal agent dose in a single injection.

8. A method for providing immediate and sustained parasiticide release in an animal comprising the steps of:

(a) providing an implanter apparatus for implanting pharmaceutical pellets in an animal through the bore of a hypodermic needle which is operably coupled to a pellet magazine;

(b) loading the pellet magazine with an immediate release parasiticidal agent pellet dose and an extended release parasiticidal agent pellet dose;

(c) inserting the hypodermic needle under the skin of the animal's ear and selectively injecting the immediate release pellet dose;

(d) simultaneously with the step of paragraph (c) also injecting the extended release parasiticidal agent pellet dose; and

(e) withdrawing the hypodermic needle from under the skin of the animal while leaving both of said immediate release and extended release doses beneath the skin of the animal's ear.

9. In an implant adapted for subcutaneous implantation in an animal's ear by an implanter apparatus through the bore of a hypodermic needle which is coupled to a pellet magazine, the improvement comprising:

(a) said implant including a plurality of pellets sized and shaped to be implanted through the needle and positioned in the magazine for selective alignment of the implant with the needle; and

(b) the pellets of a single implant including both at least one immediate release parasiticidal agent pellet dose and at least one extended release parasiticidal agent pellet dose.

10. The implant according to Claim 9 wherein the pellets are packaged in the magazine in sequential order for delivery of an immediate release parasiticidal agent dose in at least one discrete pellet followed by an extended release parasiticidal agent dose in at least one pellet for subcutaneous placement in a single injection.

11. The implant according to Claim 10 wherein said immediate release and said extended release parasiticidal agent pellet doses separately comprise a parasiticidal agent selected from the group consisting of avermectins, milbemycins, milbemycin oximes, fenbendazoles lufenerons, derivatives and mixtures thereof.

12. The implant according to Claim 11 wherein said parasiticidal agent comprises an avermectin selected from the group consisting of ivermectin, doramectin, moxidectin, eprinomectrin, abamectin, derivatives and mixtures thereof.

13. The implant according to Claim 10 wherein said immediate release parasiticidal agent pellet dose further comprises a disintegration agent and said extended release parasiticidal agent pellet dose further comprises a bioerodible matrix.

14. An implant for subcutaneous implantation in an animal's ear comprising:

(a) at least one discrete immediate release parasiticidal agent pellet dose; and

(b) at least one discrete extended release parasiticidal agent pellet dose,

said pellet doses being combined in a single unit and being injectable into an animal at the same time for implantation side by side into the same site.

15. The implant according to Claim 14 further comprising an excipient and wherein each of said immediate release and said extended release parasiticidal agent pellet doses separately comprise a parasitical agent selected from the group consisting of the avermectins, milbemycins, milbemycin oximes, fenbendazoles, lufernerons, derivatives and mixtures thereof.

16. The implant according to Claim 15 wherein said parasiticidal agent comprises an avermectin selected from the group consisting of ivermectin,, doramectin, moxidectin, eprinomectrin, abamectin. derivatives and mixtures thereof.

17. The implant according to Claim 14 wherein each immediate release parasiticidal agent pellet dose further comprises a disintegration agent and each extended release parasiticidal agent pellet dose further comprises a bioerodible matrix.

18. An implant adapted for subcutaneous implantation in an animal's ear comprising:

an immediate release pharmaceutical composition comprising at least one parasiticidal agent and a disintegration aid; and

an extended release pharmaceutical composition comprising at least one parasiticidal agent and a binding agent.

19. The implant of Claim 18, said parasiticidal agent being selected from the group consisting of avermectins, milbemycins, milbemycin oximes, fenbendazoles, lufenerons, derivatives and mixtures thereof.

20. The implant of Claim 19, said parasiticidal agent comprising an avermectin selected from the group consisting of ivermectin, doramectin, moxidectin, eprinomectrin, abamectin, derivatives and mixtures thereof.

21. The implant of Claim 18, said immediate release pharmaceutical composition

comprising from about 25-125 mg of said parasiticidal agent.

22. The implant of Claim 18, said extended release pharmaceutical composition comprising from about 50-175 mg of said parasiticidal agent.

23. The implant of Claim 18, said disintegration aid being selected from the group consisting of magnesium stearate, croscarmellose sodium, microcrystalline cellulose, derivatives and mixtures thereof.

24. The implant of Claim 18, said binding agent being selected from the group consisting of lactose, polyethylene glycol, magnesium stearate, cellulose, ethylcellulose, polymeric supports, binders, coloring agents, derivatives and mixtures thereof.

25. The implant of Claim 18, said extended release pharmaceutical composition having a delivery period of at least 120 days.

26. A method for providing immediate and extended control of parasite infestation in an animal comprising the steps of:

(a) providing an implant adapted for subcutaneous implantation in an animal's ear comprising an immediate release pharmaceutical composition comprising at least one parasiticidal agent and a disintegration aid, and an extended release pharmaceutical composition comprising at least one parasiticidal agent and a binding agent; and

(b) implanting said implant into an animal's ear.

27. The method of Claim 26, said parasiticidal agent being selected from the group consisting of avermectins, milbemycins, milbemycin oximes, fenbendazoles, lufenerons, derivatives and mixtures thereof.

28. The method of Claim 27, said parasiticidal agent comprising an avermectin selected from the group consisting of ivermectin, doramectin, moxidectin, eprinomectrin,

abamectin, derivatives and mixtures thereof.

29. The method of Claim 26, said immediate release pharmaceutical composition comprising from about 25-125 mg of said parasiticidal agent.

30. The method of Claim 26, said extended release pharmaceutical composition comprising from about 50-175 mg of said parasiticidal agent.

31. The method of Claim 26, said disintegration aid being selected from the group consisting of magnesium stearate, croscarmellose sodium, microcrystalline cellulose, derivatives and mixtures thereof.

32. The method of Claim 26, said binding agent being selected from the group consisting of lactose, polyethylene glycol, magnesium stearate, cellulose, ethylcellulose, polymeric supports, binders, coloring agents, derivatives and mixtures thereof.

33. The method of Claim 26, said extended release pharmaceutical composition having a delivery period of at least 120 days.